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PATENT SPECIFICATION

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614,540

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Application Date (in United Kingdom): July 23, 1946. *No. 21928/46.*

Complete Specification Accepted: Dec. 16, 1948.

(Under Section 6 (1) (a) of the Patents &c. (Emergency) Act, 1939, the proviso to Section 91 (4) of the Patents and Designs Acts, 1907 to 1946 became operative on July 23, 1946).

Index at acceptance:—**Classes 8(i),** I1a3a3, I2(d: j: l); **and 8(ii),** D3a1a1.

COMPLETE SPECIFICATION

Improvements in and relating to Vacuum Cleaners

I, Johannes Andries Christiaan Malchus, of Omval 1, Amsterdam, Holland, a Dutch subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to vacuum cleaners of the kind having dust filterbags positioned around spiral springs and collecting the dust on their outer surfaces, mechanism being provided for removing the dust from the outer surface of the filterbag by alternately tensioning and releasing the spring.

It is known to beat a dustbag automatically when the vacuum cleaner passes an obstacle so that during the working period of the bag is automatically freed from dust, with the disadvantage that when the bag is so beaten the finely divided dust is driven through the walls of the bag and the motor-set soon becomes fouled.

According to the present invention this disadvantage is obviated as one end of the spiral spring within the filterbag is connected by a rod with the armature of an electromagnet which is adapted to be excited by means of a switch available at the outside of the vacuum cleaner-casing. In this manner the armature is drawn into the coil of the electromagnet, the spiral spring is suddenly tensioned and the filterbag is straightened, whereas upon the excitation being cut off, the armature is released and the spiral spring contracts.

By the invention the dust filterbag can be beaten dust free, whilst the motor driven suction fan is idle.

The invention is more particularly described with reference to the accompanying drawings, in which:—

Fig. 1 shows a longitudinal section, and Fig. 2 a cross section through the centre of the improved vacuum cleaner.

In the drawings 1 represents the upper parf ot the casing of the vacuum cleaner, and which is stamped from a plate with the downwardly bent sides and ends. The casing is closed at the bottom by a removable bottom-plate 2. A motor driven suction fan 3 is mounted as high as possible above the bottom-plate 2 in the casing in order to form a space of high capacity for the dust falling down from the filterbag hereafter described.

For the mounting of the motor driven suction fan 3 an opening is cut out in the upper part 1 of the casing through which opening the motor driven fan partly projects as in [co-pending Application No. 21929/46 (Serial No. 614,541)] and over this opening a cap 4 is fixed upon the casing.

A dust filterbag 5, placed coaxially with the motor driven suction fan 3, is mounted in an air-tight manner on a ring 6 fixed upon a partition wall 7, separating a dust-collecting space 8 in front of the fan 3 from the other part of the casing. By means of two distance pieces 9 upon this ring 6 is fixed a carrier 10 for a coil 11. In this carrier also an armature 12 is lengthwise movable, said armature being fixed upon one end of a rod 13 provided at the other end with a ring or plate 14 at the front end of the dust filterbag 5. Upon the rod is mounted an adjusting collar 21 in order to prevent the rod 13 from moving too much to the right under the influence of a tension spiral spring 15 arranged inside the bag in order to hold it in place. This spiral spring has one end fixed to the ring 14 and the other end fixed to the carrier 10. In Figure 1 the spring is shown in its extended position and the dustbag is stretched as the coil 11 is excited and the armature 12 is drawn in to the coil. As soon as the electric current is cut off, the spring is released and contracts; the armature 12 moves to the right until the collar 21 strikes the front of the carrier 10 and the dustbag is compressed bellows-wise. The adjusting collar prevents the compression of the dustbag being continued so far that the bag becomes impenetrable to the air.

In the cap 4 is mounted a switch 16 for controlling the exciting current for the coil 11, which switch can be actuated from the outside by a pushbutton. The switch is provided with means (not shown) to prevent the exciting of the coil during the rotation of the motor. For this purpose the switch for exciting the motor may be provided with a rod locking the switch 16, when the motor-switch is brought into the exciting position.

It is also possible to cut off the exciting current for the beating mechanism by means of a change-over switch, when the motor rotates.

At the dustbag end of the casing 1 there is provided a hinged cover 17 having an opening 18 for the flexible suction hose whilst at the other end the casing has an outlet opening 20 for the exhaust air. The cover 17 is provided with side walls 19 which in the open position of the cover (vide the dotted line in Fig. 1) facilitate emptying of the dust from the collecting space 8.

The switch 16 as well as the motor-switch and the plug for the current-supply may be arranged in the cap 4, and if desired the electromagnetic system may be arranged automatically to cause beating movements of the filterbag as long as the switch 16 is closed, for example by inserting in the coil circuit an automatic make-and-break switch operated by the armature 12 so that the switch contacts are separated when the armature moves towards the coil.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A vacuum cleaner with a filterbag collecting dust on its outer surface provided with an inner spiral spring and a mechanism for beating the dustbag by alternately stretching and releasing the spiral spring, characterised by the fact that one end of the spiral spring is connected by a rod with the armature of an electromagnet, which electromagnet is adapted to be excited by means of a switch accessible at the outside of the casing of the vacuum cleaner.

2. A vaccum cleaner dust bag beating mechanism constructed and adapted to operate substantially as described with reference to the accompanying drawings.

Dated this 23rd day of July, 1946.

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614,540 COMPLETE SPECIFICATION 1 SHEET

[This Drawing is a reproduction of the Original on a reduced scale.]

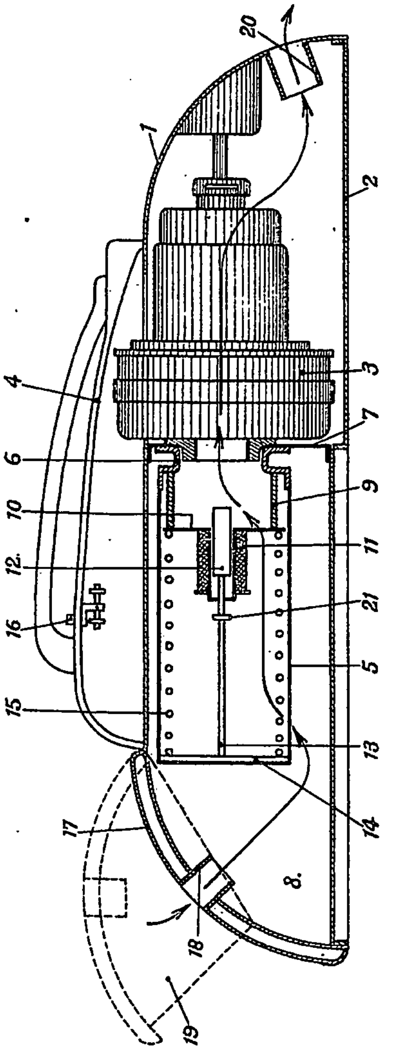

FIG.1

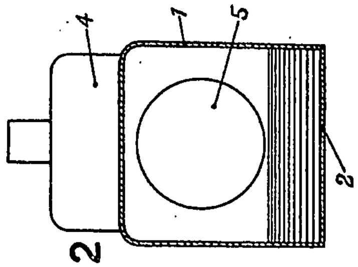

FIG.2

H.M.S.O. (Ty.P.)